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REMARKS

Favorable reconsideration of this application is requested in view of the following remarks.

Claims 4-8 have been rejected under 35 U.S.C. 112, first paragraph, as not complying with the written description requirement. Applicants respectfully traverse this rejection.

The examples disclosed in the specification sufficiently cover the scope of claim 4 (see table 1 at page 11 of the sepcification). Example A2 shows a residual rate of 78% at 270 °C and example A1 shows a higher residual rate 88%. Accordingly, claim 4 does not include new matter, and this rejection should be withdrawn. Applicants do not concede the correctness of the rejection.

Claims 4-8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kodera et al. (U.S. Patent No. 4,014,091) in view of Felix et al. (U.S. Patent No. 5,589,558). Applicants respectfully traverse this rejection.

Kodera discloses a method making an electret transducer having a polytetrafluoroethylene (PTFE) film firmly attached to the backplate by air pressure against the backplate and heated at 280-400 °C (see coln. 1, lines 47-61). The reference in no way considers the problem of deterioration of charge retention ability of the elecret using PTFE, and thus cannot suggest improvement of the residual rate of a surface electric potential of the electret by using the modified PTFE as claim 4 requires.

Felix discloses that modified PTFE provides improved mechanical properties (coln. 1, lines 24-40), weldability of moldings (coln. 1, lines 41-48), and discoloration (see coln. 2, lines 4-10). Among these improvements, Felix focuses on improvement of mechanical strength and discoloration (see coln. 3, line 38 – coln. 4, line 15). Felix fails to address the issue of deterioration of charge retention ability of the elecret using PTFE and does not suggest that the residual rate of a surface electric potential of the electret could be improved to the level claim 4 requires by using the modified PTFE.

There is no reasonable basis to expect that the improved charge retention ability at high temperature could be obtained by combining Kodera and Felix. In addition, Felix discloses polymerization conditions such as at 60-130 °C, preferably, 60-80 °C, under 4-25 bar, preferably 5 to 15 bar (see coln. 2, lines 39-47). This disclosure suggests that properties of the modified PTFE of Felix may vary depending on the conditions such as a temperature and pressure during the polymerization. Also, Kodera broadly discloses conditions of the method as placing a film to a backplate firmly by air pressure against the backplate and heating at 280-400 °C as discussed above (see coln. 1, lines 47-54) but does not disclose particular conditions. Therefore, even if Kodera and Felix were combined, there is no reasonable basis to assume that the combination of Kodera and Felix can achieve the particular residual rate of a surface electric potential at least 78 % at 270 °C for 10 minutes as claim 4 requires, and this rejection should be withdrawn.

Claims 9-19 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kodera et al. Kodera et al. (U.S. Patent No. 4,014,091) in view of Kang et al. (U.S. Patent No. 6,334,926). Applicants respectfully traverse this rejection.

As discussed above, Kodera discloses a method making an electret transducer having a polytetrafluoroethylene (PTFE) film attached to the backplate (see coln. 1, lines lines 47-61), but Kodera does not disclose surface treatment of the PTFE film or a water contact angle of the surface of the film and accordingly, the particular angles as claim 9 requires. Accordingly, claim 9 is distinguished from Kodera.

Kang discloses a method of treating fluoropolymer surfaces attached to a copper plate by first plasma pretreatement, followed by low temperature thermal graft copolymerization of functional monomers (see coln. 2, lines 55-65). In the film-laminated metal of Kang, charge transfer between the grafted functional chains of polymers and the metal improves adhesion between the film and the metal (see coln. 3, lines 41-48). Because the subject matter of claim 4 is an electret, a method of Kang that uses charge transfer between the film and the metal may affect electrical properties of the electret such as the charge retention ability. Therefore, there is no reasonable basis to combine Koreda with Kang.

In addition, Kang fails to disclose a treatment that would produce the water contact angle of the surface of the film as claim 9 requires. Moreover, because Kang uses plasma pretreatment and then, the thermal graft copolymerization of functional monomers, even if the plasma pretreatment in the first step could decrease the water contact angle, there is no reasonable basis to assume that the water contact angles of the film of Kang after the copolymerization step satisfies those of claim 9. According to the above, Kang does not remedy the deficiencies of Kodera, and claim 9 is distinguished from Kodera in view of Kang.

As discussed above, Kodera fails to disclose the surface treatment of the PTFE film. Kang discloses a method of treating fluoropolymer surfaces attached to a copper plate by first plasma pretreatement, followed by low temperature thermal graft copolymerization of functional monomers (see coln. 2, lines 55-65). The method of Kang uses charge transfer between the grafted functional chains of polymers and the metal to improve adhesion between the film and the metal (see coln. 3, lines 41-48). As discussed above, there is no reasonable basis to combine Kodera with Kang for a product for which electric properties are critical such as the electret. Thus, claim 14 is distinguished from Kodera in view of Kang.

Accordingly, this rejection should be withdrawn.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.

Respectfully submitted,

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